

REMARKS

At the time of the final Office Action dated February 16, 2010, claims 1-5, 7-9 and 11-19 were pending in this application. Of those claims, claims 11, 12, and 17-19 have been withdrawn from consideration pursuant to the provisions of 37 C.F.R. §1.142(b).

In this Amendment, claim 1 has been amended to include the limitations recited in claim 16, and claim 16 canceled. Care has been exercised to avoid the introduction of new matter. Accordingly, entry of the present Amendment is respectfully solicited pursuant to the provisions of 37 C.F.R. §1.116.

Claims 1-5, 7-9, and 13-15 are currently pending for examination, of which claim 1 is independent.

Claim Rejection Under 35 U.S.C. § 103

Claims 1-5, 7-9 and 13-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese patent application publication 09-296214 (hereinafter “JP’214”) in view of Grell et al (U.S. Patent No. US 6,682,227, hereinafter “Grell”).

The JP’214 and Grell, individually or in combination, do not disclose or suggest a manufacturing method including all the limitations recited in independent claim 1. Specifically, the applied combination of the references does not teach, among other things, “in said quenching, a pressing pressure by said molds is at least 2.94 N/cm^2 ,” recited in claim 1.

The above-cited limitations were originally recited in dependent claim 16, which has been incorporated into independent claim 1 in the present Amendment. With respect to claim 16, the Examiner asserted as follows (the paragraph bridging pages 5 and 6 of the Office Action):

Still regarding claim 16, the pressing pressure is recognized as a result-effective variable in term of mold pressing result, which depends on materials, heat

temperature, and dimension of working piece. JP'214 teaches the same molding-heat, quenching, tempering processing of the similar carbon steel as recited in the instant invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the pressing pressure, for example at least 2.94 N/cm^2 as claimed in the instant claim in order to obtain the desired working pieces.

Applicants respectfully disagree with the Examiner's position. The JP'214 does not teach the claimed pressing pressure at least 2.94 N/cm^2 . According to the Examiner, since the reference teaches the same molding-heat, quenching, tempering processing on the similar carbon steel, it would have been obvious for a person skilled in the art to optimize a pressing pressure to be at least 2.94 N/cm^2 . Applicants believe that the Examiner's assertion is illogical.

The JP'214 teaches cooling and heating a material to be treated while merely sandwiching the same between forming heat treatment dies 50. Furthermore, the JP'214 describes quenching the material to be treated with the forming heat treatment dies 50 set at temperature T_1 lower than austempering temperature T_2 , and thereafter heating the same to austempering temperature T_2 . If two work pieces which are made of the same material and have the same dimension, were subjected to heat treatment under the same temperature, it is apparent that the same heat treatment results might be seen from the two work pieces.

However, the temperature for the heat treatment, and the material and dimension of the work piece do not automatically determine a pressing pressure for the work piece in a quenching process. The Examiner did not provide any evidential support showing any relationship among the temperature in the heat treatment, the material and dimension of the work piece, and the pressing pressure in the quenching process. Even if it is assumed that the JP'214 teaches the same temperature, the material and dimension of the work piece as those of the present application, the same or similar pressing pressure under the quenching process cannot necessarily be obtained. Applicants emphasize that the Examiner did not discharge his burden to

provide such evidential support, and respectfully request the Examiner to provide the support. Otherwise, the present rejection has to be withdrawn.

Applicants also emphasize that the claimed pressing pressure at least 2.94 N/cm^2 is not a result-effective variable. This is so because (1) the pressing pressure is not automatically determined based on the temperature, and the material and dimension of a work piece to be treated unlike the Examiner's assertion; and (2) the claimed pressing pressure at least 2.94 N/cm^2 can provide unexpected results. Applicants' specification on page 16, lines 17-19 describes that "[i]n this case, by setting the pressing-pressure to at least approximately 2.94 N/cm^2 , deformation/warping in quenching-hardening was prevented." The JP'214 is silent on, among other things, these benefits discussed in the present application. In other words, the temperature for a heat treatment, and the material and dimension of a work piece disclosed in the JP'214 do not result in the claimed pressing-pressure of at least 2.94 N/cm^2 .

In addition, the JP'214 does not disclose a thrust needle bearing, as claimed. As mentioned above, the JP'214 merely sandwiches the material to be treated between forming heat treatment dies 50, performs reheating it from temperature T_1 to temperature T_2 . Moreover, forming heat treatment dies 50 are complicated as shown in, for example, Fig. 3. Accordingly, the JP'214 does not teach improving the accuracy of a thrust needle ring. In contrast, the claimed subject matter can prevent deformation and warping of the material in a quenching process (see the specification on page 16, lines 17-19). Thus, a thrust needle ring can be manufactured with high accuracy.

Grell does not teach that the pressing pressure by the molds in the quenching is at least 2.94 N/cm^2 . Further, although Grell discloses a radial needle bearing, it does not disclose a thrust needle bearing. Accordingly, Grell does not cure the deficiencies of the JP'214.

Based on the foregoing, the JP 214 and Grell, individually or in combination, do not disclose or suggest a manufacturing method including all the limitations recited in independent claim 1. Claims 2-5, 7-9, and 13-15 are also patentably distinguishable over the JP 214 and Grell at least because these claims respectively include all the limitations recited in independent claim 1. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

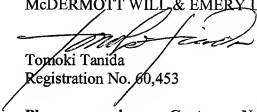
Conclusion

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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